

1 APPARATUS AND METHOD FOR MITIGATING
2 COLORANT-DEPOSITION ERRORS IN INCREMENTAL PRINTING

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5 ABSTRACT OF THE DISCLOSURE

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7 CDE is measured for each nozzle array, to enable mod-
8 ification of a mapping between input image data and inten-
9 ded printing marks to compensate for the CDE. Printing
10 proceeds using the modified mapping, which is either an
11 optical-density transformation of data to printing marks
12 or a spatial-resolution relation between image data and
13 intended pixel grid. The density transformation prefera-
14 bly includes a dither mask (but can be error-diffusion
15 thresholding instead); the resolution relation includes
16 scaling of image data to pixel grid. For some invention
17 forms, CDE includes printing-density defects, measured and
18 used to derive a correction pattern — in turn used to
19 modify halftone thresholding. For other forms CDE in-
20 cludes swath-height error, but still this is measured and
21 used to derive a correction pattern etc. For still other
22 forms, however, CDE includes swath-height error and cor-
23 rection takes the form of scaling. When the halftoning
24 forms are applied to plural-pass printing, a printmask is
25 used to map the dither mask etc. to the nozzle array, en-
26 abling application of the correction to the mask. Half-
27 tone forms ideally uses a gamma function, though threshold
28 or linear corrections are possible instead. Halftone cor-
29 rection is effective in single-pass printing. The swath-
30 height correction can modify heights of all nozzle arrays.
31 Computations are done at most only once for a full image.